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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/684,205	10/06/2000	Jack H. Hetherington	PIE-10102/29	2529
25006	7590	03/02/2007	EXAMINER	
GIFFORD, KRASS, SPRINKLE, ANDERSON & CITKOWSKI, P.C			NGUYEN, JIMMY H	
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TROY, MI 48007-7021			ART UNIT	PAPER NUMBER
			2629	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		03/02/2007	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

09/684,205

Applicant(s)

HETHERINGTON, JACK H.

Examiner

Jimmy H. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 January 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,6,11,12,15,16,18-22 and 27-36 is/are pending in the application.
- 4a) Of the above claim(s) 20 and 29-35 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,6,11,12,15,16,18,19,21,22,27,28 and 36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This Office Action is made in response to applicant's RESPONSE TO ELECTION REQUIREMENT AND AMENDMENT, filed on 01/23/2007.
2. Applicant's election without traverse of species II, as illustrated in figure 5 in the reply filed on 01/23/2007 is acknowledged.
3. Claims 20 and 29-35 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to nonelected species as indicated by the applicant in the RESPONSE TO ELECTION REQUIREMENT, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 01/23/2007. Claims 1-3, 6, 11, 12, 15, 16, 18, 19, 21, 22, 27, 28 and 36 are considered as follows:

Important Notice to Applicant

4. Note that claims 6 and 36 are similar.
5. In order to avoid the rejection under 35 USC 112, second paragraph, since a joystick lever and an elongate member are the same element, Examiner suggests the Applicant to use either a joystick lever or an elongate member, but not both, in the pending claims, e.g., claim 11.

Specification

6. The disclosure is objected to because of the following informalities: page 22, "We claim" must be deleted. Appropriate correction is required.

Drawings

7. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: there are no reference characters corresponding to the arrows shown in figure 1B.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

8. Claim 21 is objected to because of the following informalities: -- of the elongate member -- should be inserted immediately after "ends" in line 2, in order to define the first and second ends, and "elongate **element**" in line 3 should be changed to -- elongate **member** -- because they are the same. Appropriate correction is required.

Claim Rejections - 35 USC § 112

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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10. Claims 1-3, 6, 11, 12, 15, 16, 18, 19, 21, 22, 27, 28, and 36 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As to claims 1-3, 6, 18, 19, 21, 22, 27, and 36, since independent claim 1 recites both the dielectric element and the elongate member rotating (see lines 9-11 of claim 1), it is not clear that “**rotation**” in last line is referred to a rotation of the dielectric element or the elongate member.

As to claims 11, 12, 15, 16 and 28, claim 11 recites the limitation "the elongated member" in line 17. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 112

11. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

12. Claims 1-3, 6, 18, 19, 21, 22, 27, 28 and 36 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

As to claims 1-3, 6, 18, 19, 21, 22, 27, and 36, the disclosure, when filed, does not fairly convey to one of ordinary skill in the art that applicants had in their possession the claimed limitation, “an output for communicating **rotation** to the utilization device” presently recited in last line of independent claim 1. The disclosure, specifically original claim 1, discloses an output for communicating the user **position** to the utilization device. However, the original disclosure

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does not contain such description and details regarding to the above underlined limitation of claim 1, so as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Additionally to claim 27, the disclosure, when filed, does not fairly convey to one of ordinary skill in the art that applicants had in their possession the claimed limitation, "the dielectric element has a periphery described by: $r(\theta) = r_0 + a_2\cos(2\theta) + a_3\cos(3\theta)$ ". The disclosure, specifically the specification, page 13, lines 18-20 expressly, teaches that the perimeter of the dielectric is approximately

$$\rho(\theta) = r(\theta) = r_0 + x\cos(\theta) + y\sin(\theta) + a_2\cos(2(\theta+\phi)) + a_3\cos(3(\theta+\phi))$$

However, the original disclosure does not contain such description and details regarding to the above underlined limitation of claim 27, so as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

As to claim 28, see the rejection to claim 27 above.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claims 1-3, 6, 11, 12, 15, 16, 18, 19, 21, 22, and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dammeyer et al. (WO 98/50759) hereinafter Dammeyer, and further in view of Brasseur et al. (US 5,598,153) hereinafter Brasseur.

As to claims 1-3, 11 and 12, Dammeyer discloses a capacitive sensing joystick device configured for interconnection to a computer such as a game controller (see Fig. 1, page 1, first paragraph), comprising an inherent housing having a top surface; **a stationary signal-detecting capacitor plate** (an upper printed circuit board 35, see Fig. 1 or 2, page 4, lines 18-22); **a stationary signal-transmitting capacitor plate** (a lower printed circuit board 40, see Fig. 6, page 6, lines 22-25) spaced apart from the signal-detecting capacitor plate (35) by spacers (45) (see Fig. 1, page 4, lines 6-7) and divided into a plurality of electrically separated segments (plates P9-P12) (see Fig. 6, page 6, lines 22-25); **a movable dielectric member** (a dielectric disk 30) (see Fig. 1 or 2, page 4, lines 4-7); **an elongate member** (of claim 1) or **a joystick lever** (of claim 11) (a control handle 10 including a shaft 15 and a pivot assembly 20, see Fig. 1, page 4, lines 2-4) supported for pivotal movement having a proximal end for user engagement and a distal end which inherently extends through the top surface of the housing and extends through the signal-detecting capacitor plate (35) (see Fig. 1 or 2, page 4, lines 11-16), being operative to rotate and laterally shift the dielectric element (30) in x and y directions in a plane substantially parallel to the stationary plates (35, 40) as a function of the user position (see Figs. 4 and 5, page 6, line 3 through page 7, line 18); **a circuitry** (as shown in Fig. 7) in electrical communication with the stationary plates, the circuitry being operative to (a) measure the capacitance between each segment (P9-P12) of the signal-transmitting plate (40) and the signal-detecting plate (35), (b) determine user position as a function of the measured capacitance (see Fig. 7, page 6, line 29 through page 7, line 18), and (c) determine rotation of the elongate member as a function of the measured capacitance, with or without lateral shifting of the dielectric element; and **an output** for communicating the X and Y positions including rotation of the elongate member to the game

controller (Fig. 7, page 1, first paragraph). Dammeyer further teaches that the dielectric element (30) can have other shapes (see page 4, lines 9-10). Accordingly, Dammeyer discloses all the limitations of these claims except that Dammeyer's dielectric element does not have a shape of non-circular, as presently claimed.

However, Brasseur discloses a related capacitive sensor (see fig. 1) comprising a movable dielectric element (3) (see Figs. 1 and 2). Brasseur further teaches that the size and the shape of the dielectric element (a rotor 3, col. 3, lines 32-33) dependant upon the number of segments (sectors S) of the stationary signal-transmitting capacitor plate (2), e.g., if a number of segments (sectors S) of the stationary signal-transmitting capacitor plate (2) is four (Fig. 1), the dielectric member (3) may have a shape of semicircular (i.e., non-circular) (see col. 3, lines 56-61). Brasseur further teaches that the motivation for using non-circular shape of dielectric element would improve an accuracy of measured capacitance and the position of the dielectric element (see col. 2, lines 45-52). Therefore, it would have been obvious to a person of ordinary skill in the art at the time of the invention was made to change the shape of the Dammeyer dielectric member to a non-circular shape, in view of the teaching in the Brasseur reference, because this would improve an accuracy of measured capacitance and the position of the dielectric element, as taught by Brasseur (see col. 2, lines 45-52).

As to claims 6, 15, 16, 19 and 36, Dammeyer discloses the electrically separated segments (P9-P12) of the signal-transmitting plate (40) being arcuate (Fig. 6).

As to claim 18, as discussed in the rejection to claim 1 above, both Dammeyer and Brasseur disclose that the dielectric member can have other shapes. While both Dammeyer and Brasseur may not exemplify the particular shape of the dielectric element to be oval or egg-

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shaped as claimed, one of ordinary skill in the art would have found it obvious to shape the dielectric element of Dammeyer as desired as was judicially recognized in re Dailey, 149 USPQ 47 (CCPA 1976).

As to claim 21, Dammeyer discloses that the elongated member (10) includes a pivoting (a pivot assembly 20) between the first and second ends of the elongated member (see Fig. 1, page 4, first paragraph) and the distal end of the elongated member is loosely coupled to the dielectric element (30) so that the dielectric element remains in a plane substantially parallel to the stationary plates (35, 40) as the dielectric element (30) is rotated or laterally shifted (see Figs. 1 and 5, page 6, lines 7-21).

As to claim 22, Dammeyer discloses that the movement of the dielectric element (30) is constrained by the spacing of stationary plates (35, 30) so that the dielectric element remains in a plane substantially parallel to the stationary plates (35, 40) as the dielectric element (30) is rotated or laterally shifted (see Figs. 1 or 2, page 4, lines 4-9).

Response to Arguments

15. Applicant's arguments, see pages 8-9 of the amendment filed on 12/01/2006, with respect to the rejections under 35 USC 103(a) over Shaohian in view of Baker ('704'), and further in view of Baker II ('468') in the Office Action dated 9/1/2006, to claims 5 and 14, have been fully considered and are persuasive in light of the amendments to independent claims 1 and 11. However, upon further consideration, the new grounds of rejections are made above.

Conclusion

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16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jimmy H. Nguyen whose telephone number is 571-272-7675. The examiner can normally be reached on Monday - Thursday, 8:00 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached at 571-272-7681. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

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system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JHN
February 26, 2007

A handwritten signature in black ink, appearing to read 'JH Nguyen', with a long horizontal stroke extending to the right.

Jimmy H. Nguyen
Primary Examiner
Technology Division: 2629